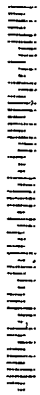


Best Available Copy

1-44

0076 01



COMMUNICATIONS DIVISION

P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

IF UNDELIVERABLE RETURN IN TEN DAYS

OFFICIAL BUSINESS

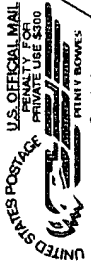
AN EQUAL OPPORTUNITY EMPLOYER



NOT DELIVERABLE  
AS ADDRESSED  
UNABLE TO FORWARD



RECEIVED  
MAY 19 1990  
USPTO MAIL CENTER



U.S. OFFICIAL MAIL  
PENALTY FOR  
PRIVATE USE \$300  
02 1A \$00.830  
0004204034 APR 19 2005  
MAILED FROM ZIP CODE 22314





# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

ITW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,191	07/27/2000	Srihari Adireddy	PHA 23,837	1207

7590 04/19/2005

PHILIPS ELECTRONICS NORTH AMERICAN CORP  
580 White Plains Road  
Tarrytown, NY 10591

EXAMINER

KUMAR, PANKAJ

ART UNIT PAPER NUMBER

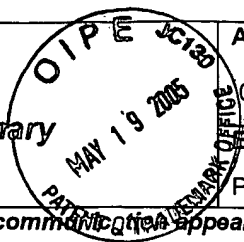
2631

DATE MAILED: 04/19/2005



Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED  
MAY 20 2005  
OIPE/JCWS

**Office Action Summary**

Application No.

09/627,191

Applicant(s)

ADIREDDY ET AL.

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9 and 17 is/are rejected.
- 7) ☒ Claim(s) 2-8,10-16 and 18-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/27/2000</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because:
  - a. It should not contain legal terminology such as the word "comprises".
  - b. It should not include a title.
2. Please enter the US application number or patent number or publication number for the cross-referenced applications.
3. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

1. Claims 1-8, 17-20 are objected to because of the following informalities:
2. Claim 1 line 5: "therein" is objected to since it seems to be referring to the first receiver but it is not clear as to that.
3. Claim 1 line 5 recites "a precursor ISI signal" and then lines 12-13 recite "a first precursor ISI signal". This is objected to since the relationship between the two is not clear. Are there two different precursor ISI signals or are they the same?
4. Claim 1 lines 13-14 recite "a second transmitted prior to said first known symbol". This is objected to since the words after "prior to" should be some type of measure such as a measure of time or distance for it to make sense and "first known symbol" is not a type of measure. Was it supposed to mean that the second symbol is transmitted prior to when said first known symbol is transmitted? This is similarly objected to in claim 17 lines 12-13.

Art Unit: 2631

5. Claim 1 part 1 has a DFE working on the stream of distorted known and unknown symbols from the transmitter while part 2 has the same DFE working on data from a known symbol generator. Thus, it appears that the work the DFE does in part 1 does not affect the work the DFE does in part 2 and vice versa. Hence, the claim is objected to since there is a disconnect between parts 1 and 2 of the DFE in the receiver. This is similarly objected to in claim 17.
6. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nobakht USPN 5,692,011 in view of Suzuki USPN 5,602,484 and Javerbring USPN 6,269,116. Here is how the references teach the claim:

9. As per claim 1: A transmitter capable of transmitting a stream of known symbols and unknown symbols through a transmission channel to a first receiver that receives said transmitted stream known symbols and unknown symbols distorted by intersymbol interference (ISI) and reduces therein a precursor ISI signal, wherein said first receiver comprises (limitations of the preamble are discussed in the remainder of the claim) 1) a decision feedback equalizer (Nobakht fig. 6: 611, 605, 623) for receiving said stream of distorted known symbols (Nobakht fig. 6: input into 603 is distorted as it is from the channel; distorted symbols are input into the trainer system

Art Unit: 2631

675 and they are known at the output of 676 as a trainer has to know in order to train) and distorted (Nobakht fig. 6: input into 601 is distorted as it is from the channel) unknown symbols (Nobakht fig. 6: data into 695 is unknown as it needs to be trained) and generating sequence detected symbols (Nobakht fig. 6:  $a(k)$ ) and 2) a known symbol generator (Nobakht fig. 6: 675) for generating a copy of a first known symbol (Nobakht fig. 6: output of 613 goes to 605 and a copy of it goes to the summer in 675) prior to an estimation of said first known symbol by said decision feedback equalizer (Nobakht fig. 6: copy of output of 613 is made to go into the summer in 675 before the output of 613 is estimated in 695), said decision feedback equalizer using said copy of said first known symbol (Nobakht fig. 6: left input into 605) to reduce a first precursor ISI signal (Nobakht fig. 6: output of 605 is meant to reduce ISI in  $y_1(k)$ ; col. 1 line 47) in a second symbol transmitted prior to said first known symbol (Nobakht fig. 6: second input into 601 will occur prior to the output of 613 as the output of 613 is generated after going through a number of elements), wherein the transmitter (Nobakht fig. 7: transmitter) comprises: a known symbol (Nobakht col. 2 lines 41-42: transmitted symbols which have to be known aprior) distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver (not in Nobakht but would be obvious as explained below).

10. Although Nobakht teaches ISI, it does not teach precursor ISI. Javerbring teaches precursor ISI (Javerbring col. 3 lines 45-51; col. 4 line 13). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the precursor ISI as recited by the instant claims, because the combined teaching of Nobakht with Javerbring suggest precursor ISI as recited by the instant claims. Furthermore, one of ordinary skill in the art, would

Art Unit: 2631

have been motivated to combine the teachings of Nobakht with Javerbring because Nobakht suggests ISI (something broad) in general and Javerbring suggests the beneficial use of reducing precursor ISI such as being more efficient in terms of not having to reduce both post cursor and precursor ISI. post cursor ISI does not pose a problem in the analogous art of reducing ISI.

11. Nobakht does not teach distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver. Suzuki teaches distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols (Suzuki fig. 4: training signal or known symbols are inserted in to signal with unknown symbols or data; col. 4 line 62: symbol) in an optimum distribution in order to improve the performance of said first receiver (Suzuki col. 5 lines 64-66). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver as recited by the instant claims, because the combined teaching of Nobakht with Suzuki suggest distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Nobakht with Suzuki because Nobakht suggests training (something broad) in general and Suzuki suggests the beneficial use of inserting training symbols such as providing a short time highly accurate measurement (Suzuki col. 2 lines 66-67) in the analogous art of training.

12. Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobakht USPN 5,692,011 in view of Suzuki USPN 5,602,484, Javerbring USPN 6,269,116, and Pite USPN 6,167,276. Here is how the references teach the claims:

13. The above discussion of claim 1 applies for the remaining independent claims 9, 17 also. Here is a repeat of that discussion:

14. As per claims 9 and 17: 1) a decision feedback equalizer (Nobakht fig. 6: 611, 605, 623) for receiving said stream of distorted known symbols (Nobakht fig. 6: input into 603 is distorted as it is from the channel; distorted symbols are input into the trainer system 675 and they are known at the output of 676 as a trainer has to know in order to train) and distorted (Nobakht fig. 6: input into 601 is distorted as it is from the channel) unknown symbols (Nobakht fig. 6: data into 695 is unknown as it needs to be trained) and generating sequence detected symbols (Nobakht fig. 6:  $a(k)$ ) and 2) a known symbol generator (Nobakht fig. 6: 675) for generating a copy of a first known symbol (Nobakht fig. 6: output of 613 goes to 605 and a copy of it goes to the summer in 675) prior to an estimation of said first known symbol by said decision feedback equalizer (Nobakht fig. 6: copy of output of 613 is made to go into the summer in 675 before the output of 613 is estimated in 695), said decision feedback equalizer using said copy of said first known symbol (Nobakht fig. 6: left input into 605) to reduce a first precursor ISI signal (Nobakht fig. 6: output of 605 is meant to reduce ISI in  $y_1(k)$ ; col. 1 line 47) in a second symbol transmitted prior to said first known symbol (Nobakht fig. 6: second input into 601 will occur prior to the output of 613 as the output of 613 is generated after going through a number of elements), wherein the transmitter (Nobakht fig. 7: transmitter) comprises: a known symbol



Art Unit: 2631

(Nobakht col. 2 lines 41-42: transmitted symbols which have to be known aprior) distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver (not in Nobakht but would be obvious as explained below).

15. Although Nobakht teaches ISI, it does not teach precursor ISI. Javerbring teaches precursor ISI (Javerbring col. 3 lines 45-51; col. 4 line 13). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the precursor ISI as recited by the instant claims, because the combined teaching of Nobakht with Javerbring suggest precursor ISI as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Nobakht with Javerbring because Nobakht suggests ISI (something broad) in general and Javerbring suggests the beneficial use of reducing precursor ISI such as being more efficient in terms of not having to reduce both post cursor and precursor ISI is post cursor ISI does not pose a problem in the analogous art of reducing ISI.

16. Nobakht does not teach distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver. Suzuki teaches distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols (Suzuki fig. 4: training signal or known symbols are inserted in to signal with unknown symbols or data; col. 4 line 62: symbol) in an optimum distribution in order to improve the performance of said first receiver (Suzuki col. 5 lines 64-66). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an

Art Unit: 2631

optimum distribution in order to improve the performance of said first receiver as recited by the instant claims, because the combined teaching of Nobakht with Suzuki suggest distribution controller capable of inserting a plurality of known symbols into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of said first receiver as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Nobakht with Suzuki because Nobakht suggests training (something broad) in general and Suzuki suggests the beneficial use of inserting training symbols such as providing a short time highly accurate measurement (Suzuki col. 2 lines 66-67) in the analogous art of training.

17. Also, for claims 9 and 17, Nobakht does not teach multiple receivers. Pite 6167276 teaches multiple receivers (Pite col. 8 line 20: "multiple receivers"; line 35: "three base transceiver stations BTS1 to BTS3"). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the multiple receivers as recited by the instant claims, because the combined teaching of Nobakht with Pite suggest multiple receivers as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Nobakht with Pite because Nobakht suggests receiver (something broad) in general and Pite suggests the beneficial use of multiple receivers such as that taught in Pite col. 8 lines 11-22 in the analogous art of receiver.

Art Unit: 2631

***Allowable Subject Matter***


18. Claims 2-8, 10-16, 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Pankaj Kumar  
Patent Examiner  
Art Unit 2631

PK

#2 S. HOOVER  
11/20/00

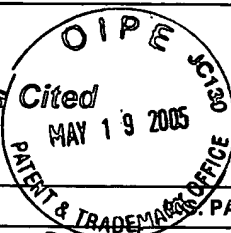
U.S. PTO  
09/27/99



Sheet 1 of 1

Form PTO-1449 (REV. 7-80)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty. Docket No. PHA 23,837		Serial No.									
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)		Applicant SRIHARI ADIREDDY ET AL													
		Filing Date CONCURRENTLY		Group											
U.S. PATENT DOCUMENTS															
Ex. Int.		Document Number							Date	Name	Class	Sub-class	Filing Date If Approp.		
Ph	AA	5	7	8	7	1	3	3	7/28/98	MARCHETTO ET AL	375	366	6/7/95		
	AB														
	AC														
	AD														
	AE														
	AF														
	AG								5						
FOREIGN PATENT DOCUMENTS															
		Document Number							Date	Country	Class	Sub-class	Trans.		
														Yes	No
Ph	AH	0	7	9	2	0	5	0 A 2	8/27/97	EUROPE				X	
Ph	AI	0	9	8	1	2	0	7 A 1	2/23/00	EUROPE				X	
Ph	AJ	0	8	1	0	7	4	2 A 2	12/3/97	EUROPE				X	
Ph	AK	9	9	6	3	6	7	7 A 1	12/9/99	WORLD				X	
	AL														
OTHER (Including Author, Title, Date, Pertinent Pages, Etc.)															
	AH	PHA 23,836, FILED CONCURRENTLY HERewith													
	AN	PHA 23,838, FILED CONCURRENTLY HERewith													
	AO	US 000064, FILED CONCURRENTLY HERewith													
Examiner <i>Pamela Munn</i>										Date Considered 4/2005					
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw li through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.															

# Notice of References Cited



Application/Control No. 09/627,191		Applicant(s)/Patent Under Reexamination ADIREDDY ET AL.	
Examiner Pankaj Kumar		Art Unit 2631	Page 1 of 1

## PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,692,011	11-1997	Nobakht et al.	375/233
	B	US-5,602,484	02-1997	Suzuki et al.	324/647
	C	US-6,269,116	07-2001	Javerbring et al.	375/229
	D	US-6,167,276	12-2000	Pite, Eric	455/456.3
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

## NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.